

~~SECRET~~

Enclosure No. 2

DRAFT RESEARCH REPORT

Prepared by ORR

World Production and Distribution
of Industrial Diamonds

~~SECRET~~

~~SECRET~~

INDUSTRIAL DIAMONDS

This study has been prepared as a survey of world production, consumption and trade in industrial diamonds, with particular reference to the magnitude and effects of Communist purchases from the free world. It gives background data for an understanding of the nature, importance and peculiarities of diamond production and use, and suggests certain courses of action that might be investigated should it be desired to interdict the flow of industrial diamonds to the USSR and its satellites.

As a supplement to the report, annexes are presented as follows:

A. Statistical tables on world diamond production.

[REDACTED]

25X1A9a

[REDACTED]

25X1X6

~~SECRET~~

INDUSTRIAL DIAMONDS

Diamond is by far the hardest of all known materials and at present is essential in drilling, cutting, grinding and polishing metals to close tolerances and in drawing fine wires, such as are required in various electrical and atomic energy devices. It is also of great value in drills and bits for mining, and is necessary in shaping and polishing bearings of sapphire for precision instruments, including certain types of shell fuses. A serious diamond shortage could be almost a disaster to national defense.

The major quantity of industrial diamonds goes into production of grinding wheels or other tools used in keeping cemented carbide tools true to shape. That is, cutting on hard steels is normally done by a carbide tool, but this in turn is trued up with diamond at intervals. Although electrical and sonic shaping and truing processes now under development in both Russia and the United States may eventually reduce the demand for diamonds, the latter are as yet a critical item in quite short supply. The shortage is mainly in bort -- the smaller, less perfect and cheaper stones that form the great bulk of the output, and that are used for grinding. The United States now takes about 70% of the world industrial diamond total. The Communist world may take 10% to 12%. Neither produces appreciable quantities, although the United States supplements imports with about 1,000,000 carats of reclaimed diamond dust recovered from grinding wheel waste.

The entire mine output of industrial diamonds comes from the free world, with 95% from Africa, and total production now amounts to about 14,000,000 carats annually. Adding in waste from gem diamond cutting, and reclaimed dust from grinding wheel waste, the total supply is about 16,000,000 carats, or 3.2 metric tons. However, in spite of a Western demand substantially greater than this supply available, a large and probably increasing flow moves into Communist hands. This works double damage, since every carat lost to us decreases our industrial production, while simultaneously increasing that of the Communist sphere. It is this matter of effect on industrial output which must be considered in judging the importance of the traffic. The dollar value of industrial diamonds is very minor in total as compared with that of the results obtained through their use. This fact complicates control, for we have a commodity of very small total tonnage, worth several thousand dollars a pound on the open market, but worth much more to the Communist world. Smuggling is therefore both relatively easy and profitable.

In spite of this fact, it may be possible to limit Communist purchases. Leakage of industrial diamonds takes place in four major areas. First, there are dealers in New York who have bought legitimately for the American market, but resell for black market export. Second, there is similar leakage in Great Britain. Third, there are sales to the Communist world of waste from gem diamond cutting in Belgium, Netherlands, Western

~~RESTRICTED~~

Germany and Israel, together with much dealing in industrial diamonds and diamond wheels imported supposedly for local use. Fourth, there are considerable Communist purchases in Brazil of locally mined diamonds, since Brazil exercises practically no effective control over production and sale.

There does not seem to be any major direct leakage of diamonds from the various African producing areas, where in contradistinction to Brazil, production and export is largely concentrated in the hands of a few corporations. Most of these are banded together for sales into one organization - Industrial Distributors (1946) Ltd. This organization, controlled by the Diamond Corporation, sells normally in London only, and refuses to sell to known Communist middlemen. It loses control of the stones once the middlemen have made their purchases, however, and due to certain archaic sales procedures, indirectly puts a premium on black marketing in spite of a quite evident desire to stamp it out.

Conclusions

The problem of controlling the flow of industrial diamonds in the world market, so as to deny or curtail acquisition by countries in the Soviet Orbit, begins with the first sale; that is, from the producer to the first purchaser, and control is easiest at that point. After the material gets into the world market the control and tracing of transfers becomes much more difficult although some pressures can be exerted farther along the line.

Some possible measures of control are outlined below. Preliminary to the development of any such plans, however, an examination of US policy and its effect on the world market as well as an examination of the policies and means of other governments and foreign corporations would be requisite.

1. The imposition of rigid accounting methods, with heavy penalty for false declaration, might kill the New York and London black markets. Importation and sale direct to industrial users, eliminating the brokers from the picture, would also be an effective control measure.
2. The leakage of waste from gem diamond cutting (principally from Belgium) might be reduced through pressure on the diamond trade. For example, since the US is the major market for gem diamonds, the threat of prohibitive duties might be used to obtain agreements to sell diamond waste to the US.
3. The Belgian Government itself might act to prevent leakage of waste from cutting, and as the Belgian Congo is the major source of both, this government occupies an important position in relation to the mining and first sale of industrial diamonds. The Belgian government, however, apparently does not restrict sales to the Soviet Orbit, in spite of classification of industrial diamonds as a List I item.

~~RESTRICTED~~

25X9A7

25X9A7 4. Action through the Diamond Corporation presents another obvious possibility. This corporation, [REDACTED], controls the greater part of the gem diamond production of the world and controls the sale of most of both gem and industrial material. The Corporation is interested primarily in gem stones and only secondarily in industrial diamonds. [REDACTED]

25X9A7

25X9A7

25X9A7

While the Corporation avoids sales to known buyers for Soviet account and presumably would be inclined, on principle, to support efforts by the US to prevent leakage to Soviet hands, it is also cool toward the US because of US policies and actions in the recent past which in the eyes of the Corporation constitute breach of trust and an unwarranted attempt by the US Government to interfere with its operations under the American anti-trust laws, which the Corporation holds cannot apply to it, since it does not operate in the United States. As long as the anti-trust suit remains pending against the Diamond Corporation, as now is the case, it probably would be difficult for the US to obtain its cooperation on new steps requiring much more than the Corporation is now doing to avoid sales to the area of Orbit control.

5. As regards Brazil, neither the Brazilian government nor any combine such as the Diamond Corporation exercises any general or effective control over production and first sale. Production is mainly in the hands of thousands of individual miners, who habitually sell most of their production to black market buyers, in order to avoid taxes.

An appreciable percentage of output thus gets into Communist hands. While production is less than 4% of the world total, it is appreciable in terms of Communist demand.

An effort to prevent or reduce this traffic by preclusive buying probably would be ill advised. It could be expected to push the price up and result in a rush of miners into what is ordinarily a marginal industry. The Brazilian government doubtless could halt mining, but would not be likely to do so unless financial inducements to both government and miners were offered. For example, as a substitute for employment in diamond production miners might be attracted into production of other items such as beryl, monazite and other minerals wanted by the West and more easily controllable as to smuggling.

A coordinated Brazilian government program would be required to make such a plan effective. For example, higher wages and assured employment in such a substitute industry could be made known in the diamond mining areas, and at a slightly later date, production taxes on diamonds could be raised, the means of enforcement being concurrently strengthened. Examination of the feasibility of applying this or some other plan for control at the source is pertinent, because much of the Soviet bloc purchases seems to be transported in diplomatic pouches, immune to inspection.

Description

Industrial diamonds are those not suitable for jewel use, because of poor color, faulty crystallization or shape, flaws or small size, and which are therefore sold at a discount for uses where extreme hardness rather than beauty is required. The term is indefinite in meaning since gem diamond can be used for industrial purposes, and variations in relative prices for gem and industrial material will cause borderline stones to be classified at one time as gem and another time as industrial material. Practically speaking, industrial diamonds are therefore those used for work rather than ornament and in weight comprise 75% to 85% of the total diamond production of the world. Allowing for waste produced in cutting gem stones, which waste becomes industrial material, about 90% of the weight of diamond produced annually ends up as industrial material. In value, however, gem diamond predominates.

Industrial diamonds may be divided roughly into four classes. First, we have industrial stones, consisting of those free of flaws and large enough for making dies for wire drawing, or for insertion in bits or other tools for drilling, cutting, and truing purposes. Second, and making up about 70% of world tonnage, is bort which is smaller or less perfect material, generally used crushed for making diamond wheels and for other abrasive and polishing purposes. Third, is waste from gem stone cutting, used partly in such cutting but produced in greater quantity than the gem industry itself requires, and hence available as a competitor and supplement to bort. Very fine powder reclaimed from the residues obtained in cutting and polishing items with bort or waste is now coming into production as a fourth class. It is seen that the first two are items of primary production, and that the second two are secondary or re-use items. A certain amount of die and tool stones also are re-used by being converted into bort when too worn to be of further value in their original form. The world supply of industrial diamonds is therefore appreciably larger than annual production of tool stones and bort would indicate. Total supply for 1951 is estimated at a little over 16,000,000 carats or 3.2 metric tons, about 15% of which is gem waste and reclaimed powder. An exact supply figure is not available.

Uses

The major use of industrial diamond is in preparation of grinding wheels and cutting tools. These are used in the main not directly on finished manufactures but instead are employed in keeping the actual cutting tools of cemented carbides or other hard substance true to shape. It is the growth of metal carbide uses that has brought demand for industrial diamond to present levels.

Prior to 1939, world production of industrial diamonds was generally much in excess of world demand, and large stocks, especially of bort, were piled up by producers.

~~RESTRICTED~~

But World War II brought a speeding up of technology, an increase in the basic level of industrial output, and demands on industrial diamond supplies that wiped out almost all stored stocks. It had been found previously that use of cemented carbide tools would allow the machining of hard metals at rates many times faster than had hitherto been feasible and this discovery was applied during the war so as to boost output per machine and per worker, and is now basic to modern high precision industry. Use of diamond for truing carbide tools instead of for direct cutting multiplies the work that can be done, for one diamond tool can keep many carbide ones in operation.

Increased use of diamonds in drilling has also taken place, because of greater oil output, a higher level of metal mining, and increased application of long hole blasting. Diamond inserts in drill points cut rock appreciably faster than do carbide inserts, and make four to five times as much hole before needing removal for replacement, thus saving much drilling time. Various grinding and polishing uses also exist. Relatively small quantities of good stones, usually of 1/4 to 1 carat, are also required for making fine wire produced by drawing metal through a hole in the die stone. Minor uses for hardness testing, for bearings, radiation measurement in the atomic energy field and other purposes also exist.

Total consumption in world industry in 1951 may have exceeded 14,000,000 carats, and would have been more if supplies had been larger. Government stockpiling reduced supplies available to industry. World demand for industrial diamonds is heavy and increasing. Denial of them to an advanced industrial nation would have serious effects on both the quantity and quality of machinery and vehicle output, and would slow down appreciably oil and metal mining.

Substitutes

For uses where hardness is essential, there are no adequate substitutes for diamond. On the Wooddell scale of hardness, diamond ranks from 41 to 43, while the next hardest substance, boron carbide, ranks below 20, followed by silicon carbide at 14, and tungsten carbide at 12. The hardest natural mineral other than diamond is corundum with a hardness of 9. Diamond therefore cuts these other substances with ease, and is worn not primarily by the hardness of such materials but by being chipped off, since diamond is of course not tough but only hard.

In spite of much work, it has to date been found impossible to make synthetic diamond, although the latter is only carbon crystallized in a specially dense form.

As regards the synthetic carbides and the similar nitrides and borides, these are very hard substances, of immense value in grinding the hard alloys of which modern machines and weapons are made. But industry needs both

speed and accuracy of cut, and accuracy is impossible unless the cutting tools are trued up from time to time. As previously stated, diamond is used for this task, and no other substance has to date proven economically suitable as a substitute. B.I.O.S. Report No. 10 states that when Germany was cut off from diamonds by Allied blockade in World War II, industry found that it cost ten times as much to sharpen carbide tools without diamonds as it did with them and required much greater industrial effort. This, of course, did not mean that industrial production was cut proportionately, but it did mean a quite perceptible decrease in output and especially in quality of finished product.

During the war, the Russians began the development of electrical methods for shaping carbide tools and for making accurate holes in metals, probably basing research on some very early American proposals that had been neglected here. Since the war, we and others have carried research forward, based on Russian experience, and are now on the verge of extensive commercial application of two electrical and one ultrasonic method which have been evolved. These promise to ease but not to eliminate the demand for industrial diamonds. Russian knowledge of these fields is probably about equal to ours, but the USSR, like the United States, still continues to import and when possible to stockpile diamonds. This would seem to show that neither country's experts believe that uses for diamonds will soon be eliminated; in spite of much propaganda to the contrary. A discussion of results obtained with electrical and ultrasonic methods of shaping, sharpening, grinding and boring will be found in "New Processes for Machining and Grinding" issued January 18, 1952, by the Division of Engineering and Industrial Research, National Academy of Sciences. Numerous Russian technical articles are also available in summary translations.

A quick survey of the literature fails to show a full picture of relative costs to industry in currency, in total output and in quality of work performed, comparing diamond with other abrasive substances that might be used. Comparisons with electrical and ultrasonic methods are also in rather general terms. It is the impression of National Production Authority experts, however, that a shortage of industrial diamonds would be a serious matter for any industrial power.

Supply

World mine production of diamonds is estimated at 17,000,000 carats for 1951, and industrial diamonds made up over 14,000,000 carats of this total. One carat is one-fifth of a gram. Detailed figures for production and average prices in previous years are given in tables A and B appended hereto. Inspection of such tables shows that normally about 70% to 80% of the total industrial output comes from the Belgian Congo. Production here is mainly born from large and rich alluvial deposits in the Kasai region in the southwest part of the colony. These deposits on average yield about 95% industrial diamonds to 5% gem material, by weight. Gold Coast and Sierra Leone are predominantly industrial stone producers. At the other extreme, South Africa and Southwest Africa, which produce most of the gem material

of the world, are of only secondary importance in industrial diamond output. However, the Premier mine which is now being brought back into full production, will tend to increase South African industrial stone volume, since it is relatively high in such material. Minor quantities of industrials come from Angola, French Africa and Tanganyika.

Bureau of Mines statistics given in this study indicate that Africa yields 99% of the world production of industrial diamonds, with South America supplying almost all the remainder. Reports believed reliable, however, tend to show that Brazil is a much more important producer than these statistics would indicate, since producers there usually "forget" to report more than one-eighth to one-tenth their true production, to avoid taxes and to evade forced sale of the foreign currency acquired. Brazil may produce 500,000 carats of industrials per annum, although any figure is a mere guess. Production elsewhere seems truly minor, although Venezuela has potentialities.

World output then is perhaps 95% in Africa and 4% in Brazil. Known deposits will permit African production to continue for at least twenty years at present levels, and there are diamond possibilities in areas not yet fully checked. Both the USSR and the United States have produced a few diamonds, but seemingly have no present output or important future potentialities. Both depend on imports.

World production is trending upward, but at present the increase is at a slower rate than the increase in demand. U. S. Government loans have been made to certain producers in French Africa to boost production, and producers elsewhere may receive them. Repayment is scheduled to be in industrial diamonds.

Production in Brazil is mainly in the hands of thousands of small independent miners. There is also a large individual production in Gold Coast, although half of the production there is by one major corporation. Mining elsewhere in Africa is substantially monopolized by various big companies. In Belgian Congo, three companies managed by Forminiere produce almost all the output. Forminiere, which is also the major factor in copper and uranium, is 50% owned by the Belgian Congo Government, the remainder being reportedly divided between Belgian and American private capital, although data available do not show the precise extent of the present ownership, or whether the Government shares are voting ones. Half of the Gold coast and almost all the Sierra Leone production is by Consolidated African Selection Trust, a British private corporation headed by an American who has become a British citizen. Tanganyika production is by a private British citizen. Angola production is by a Portuguese corporation with Government participation, but with control in private hands, capital being of Portuguese, Belgian, American and probably British origin.

~~CONFIDENTIAL~~

25X9A7

French African production is in the hands of several relatively small private French companies, one of which has American capital participation. South African and Southwest African production (except for a minor output from individual producers) is concentrated in the hands of De Beers Consolidated Mines and affiliates.

dominates the world trade in both gem and industrial stones. Only the French and Brazilian groups seem unaffiliated. There is South African Government participation in certain major subsidiaries, such as the Premier mine. Formerly there was minority American stock ownership in the parent corporation and some subsidiaries, but the present status thereof is unknown. Effective operational control is in British hands.

Marketing

As indicated, the Diamond Corporation markets its own gems and industrial production, and has contracts with Congo, Angola, British West Africa and Tanganyika producers to market their stones as well. The corporation seems mainly interested in sales of gem stones, regarding industrials as an important but politically troublesome subsidiary business. Industrial Distributors (1946), Limited, handles sales of industrial stones, which are usually sent to London for disposal. Handling procedure seems complicated, however, since Congo production, for example, reportedly is sent to Belgium for checkup, then to South Africa for grading and crushing, then to London for further grading and sale. Production by small miners in Gold Coast is compulsorily sold to a local bank, which in turn resells to the Corporation.

Sales in London are open only to those invited to purchase. Such prospective buyers have little choice as to purchases and none as to price. Diamonds are displayed in lots, which may have stones suitable for various uses all intermingled, and each lot will be of substantial quantity. A buyer must accept or reject the lot as shown, at the price set, and if he rejects too many, he will not be invited to future "sights". The result is to favor the large purchaser and discourage those with small capital or those interested in only one type of stone, since these latter must arrange private resale of types not wanted. The sales practices therefore encourage growth of a broker class between the Diamond Corporation and the smaller industrial consumers. The Corporation makes no particular attempt to sell direct to the actual user, to the exclusion of brokers, although reports hint that it does not now like the broker arrangement. It feels that some brokers tend to "gouge" small purchasers, tend to purchase stones as industrials at industrial prices and then to cull out borderline gem material and resell clandestinely as gem stones in competition with the Corporation, and at times deal in black market sales to the Communist world. Brokers may also hoard supplies and run up resale prices in time of shortages.

~~RESTRICTED~~

25X9A7

In spite of its monopoly position, the Corporation seems to have been relatively moderate in pricing industrials, which are commonly sold in major part to the United States. Quotas are set by the Diamond Corporation on the quantities which will be sold to particular countries, and no sales known to be for Communist account have been made since the end of the war. It is understood that [REDACTED] is personally anti-Communist and would like to see leakage to Communist lands stopped.

Direct sales to United States consumers are made difficult by existence of an anti-trust suit pending since 1944 against the Corporation in this country. The Corporation therefore finds it impossible to set up offices here, or to have funds or diamond stocks in its name in American banks, for fear of legal consequences. The suit is untriable because it is against a foreign corporation doing no business here, but nevertheless is uncanceled and prevents such business ever being done. The Corporation considers the suit an impertinence, since it operates abroad and is not subject to American law, and resents what it considers to be propaganda persecution. It is particularly angry because it furnished many millions of carats of industrial diamonds to the United States Government during the war, at prices well below the 1930 level, and even shipped to Canada at our request its stockpile of such stones for safekeeping. It also alleges that the United States Government purchased huge quantities at a price made specially low for wartime industrial use only and then, in violation of agreement, selected out gem material and resold it post-war at many times the price, in competition with Corporation gem sales. Some persons feel that keeping this suit in being pleases New York brokers very well, since it prevents the Corporation from making retail sales direct to consumers in this country.

On the other hand, there is no doubt that the Corporation is a monopoly set up to limit production and maintain price and that it pursues an archaic sales policy and is sometimes arbitrary with would-be purchasers. Gem production and sales are strongly rationed, and although prices for industrials seem reasonable, there is a suspicion that the Corporation is not enthusiastic about increasing output, for fear of future glut when defense orders decline. However, the Corporation has acquiesced in stockpile purchases by the United States Government, including purchases direct from the Congo producers, and has given the United States in effect first choice on world industrial diamond output, to the detriment of sales which could be made at higher prices to the countries of Western Europe. In gem stone sales, it favors Belgium over others, it is alleged, probably because of pressure Belgium can exert through its Congo production.

Brazilian production is independent of the Corporation and purchased by a number of small dealers, for resale to the highest bidder. The relatively small production of French Equatorial Africa goes partly to France

~~RESTRICTED~~

- 10 -

and partly to the United States. It is independent of the Corporation, but is in few hands and is therefore controllable, although not now carefully controlled as to ultimate destination.

A few major buyers get their stones direct from the Diamond Corporation, but the great majority of manufacturers purchase from dealers who have previously bought at the London sales. In the absence of any attempt by the Corporation to separate out types and sizes of stones and to fill a specific order for a specified quantity and quality, the brokers do perform a useful service. However, they in turn are a monopoly, since only those persona grata are invited to purchase from the Diamond Corporation, and some are alleged to misuse their position at times to charge industry an excessive markup on Corporation prices.

The really bad feature from the security standpoint, however, is that major dealers resell to minor ones of dubious morality, who may offer more than industry, or may be willing to take a type and size of stone not currently in heavy demand and therefore relieve the original purchaser of unwanted material forced on him by Diamond Corporation sales policy. In turn, these minor dealers often sell on the black market. This may result in sales to Communist agents.

There is evidence that some unspecified but perhaps appreciable proportion of the industrial diamonds imported into the United States have in past years been reexported to Europe either directly or by way of Canada or Latin America. Part of the black market export has been "legitimate", made possible by taking advantage of legal loopholes, the worst of which we hope are now closed. Another part is simply smuggled out in defiance of law. United States recorded exports to Canada were 610,606 carats in 1949 and 644,153 carats in 1950, while simultaneously Canadian recorded exports (mainly to Europe) were 546,301 and 615,865 carats, respectively. That is, Canada was merely a way station for getting from the United States to Europe industrial diamonds which our export controls would not allow to be sent directly. Representations were made to Canada some months ago about this situation, and it is hoped the leakage has been stopped. Leakages of smaller magnitude probably take place through Latin America, and a third leakage may take place through United States exports of diamond wheels to Europe. We habitually sell there, but few steps have been taken by recipient nations to control actual ultimate use of the product.

As to smuggling, it is alleged in trade circles that industrial diamonds, which are high in value and small in bulk, go abroad in pockets or baggage in a fairly steady stream, aided by the fact that we have no export duties and hence no rigid customs inspection. For the last few years, prices for diamonds in Europe have been 20% to 100% over the New York level, and the temptation to smuggle is therefore great. Once the stones are in Belgium or other suitable country, they may be openly sold to Communist buyers and almost openly shipped by them, although not all smuggled material ends up in Communist hands, since Western European industry also buys on the black market.

Stocks

25X9A7

As of January 1, 1952 the United States Government had acquired a stockpile of industrial diamonds amounting to 19,200,000 carats, sufficient for over one and one-half year's wartime consumption, but has not yet attained stockpile goals. Industry here has only relatively small stockpiles. The [REDACTED] apparently has about exhausted the stocks it had accumulated in previous years, and now must sell from current output. Stocks in foreign government hands are not known, but probably are not large except for the USSR, which may have at a guess enough for six months to one year. The satellites seem to have little.

Demand and Prices

World consumption of industrial diamonds in 1951 is estimated very roughly at 14,000,000 carats, including consumption of waste and dust. In addition, about 2,000,000 carats went into stockpiles, this latter figure representing a net increase of over 4,000,000 carats in Government (mainly U. S.) stocks and a reduction of over 2,000,000 carats in private holdings, which are now believed to be small. These figures are only approximate, since satisfactory data have not been available and various estimates differ widely.

United States industry is demanding for 1952 between one million and two million carats more of bort than seems likely to be available, and demand may increase in 1953. Western European industry is proportionately still shorter in supply, and seeks to draw bort from the United States through black market purchases. Industrial stones seem in satisfactory supply.

Communist demand is large, but not quite as urgent as that of several months ago, and there is less tendency to pay any sort of price the dealers may set. It is thought this is not a sign of reduced takings, but rather one of better organization of supply channels, plus accumulation of at least a minimum stockpile beyond the day-to-day requirements of Communist industry. The Communists can now afford an attempt to beat prices down.

25X9A7

Prices for bort fluctuate considerably on the retail market, and at times differ greatly from [REDACTED] values. The average value of bort imported into the United States was \$2.73 per carat in 1939, declining to \$1.19 in 1945 in line with Diamond Corporation policy in aiding the war effort. The price jumped to \$3.09 in 1946 and was \$3.78 in 1951. The London price is understood to have been in the neighborhood of \$2.22 in 1951.

Prices for resale in smaller quantities in New York have been around \$4.00 and up. Antwerp black market prices according to various trade rumors of doubtful authenticity, vary from \$4.50 to \$7.00 per carat.

Industrial stone prices vary with the size and condition of the stone, and U. S. prices may range from \$5.00 to over \$35.00 per carat. Gem prices average \$50 to \$60 per carat, but likewise vary widely. The Diamond Corporation valued its total gem sales at \$38,358,000 in 1950, as compared to \$12,609,000 for industrials.

Communist Purchases of Industrial Diamonds

Prior to World War II, USSR purchases of industrial diamonds were small. During the war, such diamonds were allocated to Russia by the British Government, and it is understood that some were bartered by the latter to Russia in early post-war years. 25X9A7

Nevertheless, Communist purchases have been large since 1948, and are apparently increasing. No satisfactory figures on the magnitude of such purchases are available, but from a study of trade estimates, individual east-west trade deals etc., it is thought that between 1,000,000 and 1,500,000 carats moved into Communist hands in both 1950 and 1951. A rough estimate might be made that 70% of the total went to USSR for consumption or stockpile, and most of the remainder to East Germany and Czechoslovakia, with small amounts to Poland and Hungary. East Germany draws a large part of the fine wire needed by electrical and atomic energy industries of the Communist world, but uses only moderate quantities of diamonds in such work. Major quantity consumption in the Communist world, as in the United States, is in grinding wheel and other abrading, turning and drilling operations. The USSR is an important manufacturer of diamond wheels, and has not sought to import the finished product since about 1945, being content with raw diamond, which is of course much cheaper. On the other hand, it is suspected that East Germany, Czechoslovakia and other satellites have purchased in Western Europe diamond wheels sold there by United States manufacturers for Western European use.

In 1949, 1950 and the first half of 1951, large amounts of industrial diamonds went from the United States to Europe and the Communist world, by way of ostensible exports for Canadian consumption. Figures for this have been previously given. Information received also indicates some leakage by way of Latin America, through reexport sales. At the present time, it is rumored to be smuggled direct from New York to Europe and as a guess the Communists may still get 100,000 to 200,000 carats from this country by various devious means. As of 1952, a larger leak is probably found in Belgium which has several hundred thousand carats of diamond waste for sale, as residue from the cutting of gem stones. Sales to Communist countries seem to be legal and almost open, although camouflaged by Swiss or other nominal destination at times. Similar leaks of diamond waste take place from Netherlands, West Germany and Israel, but to a much smaller aggregate total. 25X9A7

25X9A7



As indicated, Communist agents are active in buying diamonds. Up to a few months ago, they were willing to pay good premiums over the open market price, and in trade circles were also known as indiscriminating buyers, who could be cheated on quality. They are not quite so active now, although this is probably a temporary lull as has once or twice taken place in the past, and they now know much more about the diamond business. They still pay premiums, but bargain much harder and are known to have refused some offers on basis of price or quality. On the other hand, they are continuing to ration satellite industry on diamond needs, and so cannot have a superabundance of supplies. It might be estimated that part of the buying urgency from 1948 through 1951 was connected with acquisition of at least minimum stockpiles and that current buying is mainly for consumption.

~~RESTRICTED~~

It is of interest that in 1951 and earlier, the Russians are known to have sold cut diamond gems on the Paris and other markets, taking their pay in industrial stones, which of course meant getting back many times the quantity sold. Prior to the Russian Revolution, Russia was the largest consumer of gem diamonds, and Communism has received important financing from their sale. Some raw gem material seems to have gone to the satellites in the last year. Since it would hardly have been imported in substitute for cheap industrial diamond with the latter as readily available as it has been, this raises the possibility that a diamond cutting industry is established behind the iron curtain, designed to take advantage of foreign exchange profits to be derived from import of raw stones and exports of cut ones -- perhaps as "czarist relics". A further profit would be derived from retention of waste from the cutting for industrial use.

Since it is well known that Russia exports gem diamonds, any denial of industrial stones must bear in mind the possibility of diversion of gems to industry use. This diversion is quite possible technically, but is nevertheless of great advantage to us, if it can be forced. Such a use means that a foreign exchange loss of perhaps ten to twenty times the cost of equivalent industrial stones must be borne. This means less money for illicit trade with the West, and a loss of an easy way for inconspicuous financing of Communist activity in India, Latin America and elsewhere, where diamonds are a common means of saving and an accepted black market currency. The provision of "refugees" with diamonds for sale could be an easy means for supporting Communist intelligence activities in such areas.

Strategic Comparison of the United States and USSR in the Industrial Diamond Field

In comparing the relative industrial requirements, strengths and weaknesses of the two countries, it is noted that both are completely dependent on imports, but that allies of the United States produce substantially all the industrial diamonds of the world. Nevertheless, certain of these allies deal in such diamonds with Soviet buyers.

Including stockpiling, the United States requires approximately 12,000,000 carats of industrial diamonds per annum at present, and its allies about 5,000,000 as against perhaps 1,500,000 for the Communist world. The supply of new material available to the United States and its allies in 1952, plus about 2,000,000 carats of gem waste, reclaimed material and worn out stones crushed for bort, will probably not exceed 15,000,000 carats after subtracting Communist takings. Denial of supplies to the Communist world would reduce our own shortage very substantially, while affecting unfavorably Communist industrial output. It can be seen, however, that preclusive buying on the free market might be a very expensive means of reducing Communist takings, since the West uses 90% of the world total. Pushing prices up might also induce greater output in Brazil

and other loosely controlled areas, and so defeat its own ends. Germany and Japan were able to buy in Brazil during World War II in spite of our attempts to take all the local production.

While the West controls diamond production and most of the stocks, and is not vulnerable to Soviet military action against sources of supply or distribution, since production can be very easily flown to market, it does have certain weaknesses that can be exploited. First, development of Communist cells in Gold Coast and the Congo might threaten the level of output, or lead to extensive clandestine diversion of stones to Communist hands. Communist agitation is now taking place there. Second, supplies can be drained off through black market sales, ~~and~~ dummy purchases, as is now taking place. Third, inducements can be offered to various governments to barter diamonds for needed Communist supplies. Fourth, bribery of those in charge of mine production can lead to falsification of output figures and diversion of quantities thus stolen into illicit trade. Fifth, bribery of officials can lead to fictitious allocations to industry, certification of false export destinations and similar abuses. Open robbery must also be considered, for a very large parcel of industrial diamonds was taken in England recently.

Diplomatic pouches can cover a multitude of sins of this nature, and it seems impracticable to stop shipments already in the hands of Communist officials. No physical means for detecting, with certainty, the presence of diamonds in an unopened pouch are apparently known, since diamonds are semi-transparent to x-rays. On the other hand, the West does have some weapons. Rigid accounting methods could deprive shady dealers of surpluses to be traded on the black market and pressure on gem cutters could dry up this major leak.

Negotiations with the Diamond Corporation and the British, Belgian, and Brazilian Governments might lead to more effective control of supplies.

In case action is to be taken, determination of the actual needs of industry for diamonds for various unit operations should be made, embodying the best of American and European practice, so that standards could be set as to the quantity and quality of stones to be allotted to each industry for a given level of output. Such standards are not apparently now available. This could reduce waste, and minimize the chance that dishonest companies will order to excess, and sell the unused surplus on the black market. If it is determined that so many carats are required for such a quantity of automobile engines, for example, elementary calculation will reveal true needs.

~~RESTRICTED~~



25X1A2g

A n n e x A

Sanitized - Approved For Release
CIA-RDP62-00865R000300070003-1

Year	<u>World Production</u>		<u>Industrial Diamonds Imported into the USA</u>		
	<u>Total of all Kinds (in carats)</u>	<u>Industrials* (in carats)</u>	<u>Percent Industrials</u>	<u>Amount (in carats)</u>	<u>Value (per carat)</u>
1939	12,501,000	10,300,000	82	3,568,730	\$2.73
1940	13,016,000	11,100,000	85	3,809,071	2.89
1941	9,211,000	7,600,000	83	6,882,248	2.17
1942	9,587,000	7,900,000	82	11,203,704	1.97
1943	8,694,000	7,000,000	81	12,084,133	1.81
1944	11,764,000	9,600,000	81	12,614,507	1.81
1945	14,384,000	12,000,000	83	10,729,869	1.19
1946	10,135,000	7,900,000	77	4,625,282	3.09
1947	9,743,000	7,500,000	77	3,999,119	3.33
1948	10,047,000	7,700,000	76	10,421,207	3.13
1949	14,175,000	11,600,000	81	6,261,689	2.77
1950	15,300,000	12,600,000	82	10,835,596	3.24
1951	15,500,000	13,000,000	84	12,049,722	3.78
TOTALS		125,800,000			

*Mr. Chandler's Estimates

Source: Bureau of Mines
Mr. H. P. Chandler

Sanitized - Approved For Release :
CIA-RDP62-00865R000300070003-1

Sanitized - Approved For Release
CIA-RDP62-00865R000300070003-1
INDUSTRIAL DIAMOND PRODUCTION

BY COUNTRIES

	Thousands of Carats											
	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Angola	300	340	340	350	340	345	345	345	345	345	338	232
Belgian Congo	8,000	9,100	5,500	5,700	4,600	7,250	9,850	5,750	5,200	5,500	9,200	9,800
French Africa	65	80	70	82	81	116	114	126	145	170	180	214
Gold Coast	925	700	850	900	1,130	990	680	550	725	720	830	808
Sierra Leone	360	500	560	690	550	400	350	366	400	305	320	440
South Africa	500	220	64	47	128	355	460	510	480	480	500	700
W. Africa	9	6	9	11	20	31	30	33	36	36	56	198
Tanganyika	1	2	6	8	11	18	24	24	18	18	38	39
Others	160	150	160	145	130	140	120	154	145	145	135	124
TOTAL	10,320	11,098	7,559	7,933	6,990	9,645	12,003	7,858	7,494	7,719	11,597	12,555

Source: Bureau of Mines
Mr. H. P. Chandler

Sanitized - Approved For Release
CIA-RDP62-00865R000300070003-1

25X6A

Sanitized - Approved For Release : CIA-RDP62-00865R000300070003-1

25X1A2g

25X1X6

Next 7 Page(s) In Document Exempt

Sanitized - Approved For Release : CIA-RDP62-00865R000300070003-1